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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/318,268 05/25/99 MATSUMOTO

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EXAMINER

MMC1/0726
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ART UNIT 1171 B PAPER NUMBER

2053
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07/26/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)
	09/318,268	MATSUMOTO ET AL.
	Examiner Blaise L Mouttet	Art Unit 2853

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 13 July 2001.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-40 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) 36-40 is/are allowed.
 6) Claim(s) 1-26 and 33-35 is/are rejected.
 7) Claim(s) 27-32 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 17 August 1999 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed May 3, 2001 fails to comply with the provisions of 37 CFR 1.98(a) and MPEP § 609 because no explanation of relevance or translation of the Taiwan document number 158658. It has been placed in the application file and US 5,610,635 and 5,699,091 have been considered, but Taiwan document 158658 has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Specification

2. The amendment entered July 13, 2001 (paper no.11) has overcome the objections to the specification contained in the prior office action (paper no.8).

Claim Objections

3. The amendment entered July 13, 2001 (paper no.11) has overcome the objections to the specification contained in the prior office action (paper no.8).

The following are new objections regarding the syntax of claims 23 and 27:

In claim 13, line 7 delete "the" since "data indicative of a residual ink amount" has no antecedent basis.

In claim 23, line 2 and claim 27, line 6 "reproduction" should read --reproductions-- and in claim 27, line 5 "reproduction processing apparatus" should read --a reproduction processing apparatus--.

Claim Rejections - 35 USC § 112

4. The amendment entered July 13, 2001 (paper no.11) has overcome the 35 USC 112 rejections contained in the prior office action (paper no.8).

The following are new rejections:

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21-23 and 33-35 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted element is the element on which a next reproduction is being performed. These rejections would be overcome if in claims 21 and 35 "a next reproduction" and in claims 22 and 33 "the next reproduction" were amended to read --a next reproduction of the ink cartridge--.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 3-5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Cowger et al. US 5,788,388.

Cowger et al. discloses an ink cartridge (12) for an ink jet type printing apparatus (10) having a print head (32), the ink cartridge comprising a container (16, figure 2) having an ink chamber (14) for containing ink; an ink supply port (34, figure 3) for ejecting the ink from the ink chamber (14) to the print head (32);

a memory device (20) for storing data related to the history of the ink cartridge including data indicating the number of reproduction times of the ink cartridge (column 7, lines 1-7), data related to a maintenance processing required for reproduction, data related to a condition of cleaning, data related to replacement of ink in the ink cartridge, data related to a time of final use of the ink cartridge, data related to ink depletion in the ink cartridge, data indicating the date of manufacture of the ink cartridge, data indicative of a lifetime of the ink cartridge and data related to a preset minimum amount of ink to be contained in the ink cartridge and said memory device having an area in which the data is stored in a rewritable manner (column 2, lines 30-33, column 5, lines 22-33).

Claim Rejections - 35 USC § 103

6. Claims 1, 2, 6 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowger et al. US 5,788,388 in view of Childers et al. US 6,161,913.

Cowger et al. discloses the elements common to claims 3-5 and 7 as cited in section 5 above.

Cowger et al. fails to disclose that the data stored in the memory device includes data related to an environment in which the ink cartridge is used.

Childers et al. '913 shows storing an air accumulation parameter related to the ink cartridge environment (column 2, lines 51-60) in memory to determine the lifetime of a print head (column 2, lines 1-7).

It would have been obvious for a person of ordinary skill in the art at the time the invention was made to store an air accumulation parameter as taught by Childers et al. '913 in the memory device of Cowger et al.

The motivation for doing so would have been to accurately determine the life span of the ink cartridge of Cowger et al. and replace it before it causes damage to the printer as taught by column 3, lines 8-18 of Childers et al. '913

7. Claims 13 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowger et al. US 5,788,388 in view of Childers et al. EP 854 044.

Cowger et al. discloses a controller (24) to monitor printing activities to keep track of ink volume (column 4, lines 55-65) in the ink cartridge.

Cowger et al. fails to disclose that an ink discharge operation or cleaning is altered based on the data relating to the minimum ink amount and the residual ink amount.

Childers et al. '044 teaches of a print cartridge with an integral memory which stores data regarding flushing operations when the ink cartridge is refilled with a new ink (column 2, lines 44-50).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the control device in the printing apparatus of Cowger et al. to control flushing operations as taught by Childers et al. '044 in accordance with the data stored in memory.

The motivation for doing so would have been that when replacing old ink in an ink cartridge with new, different ink the print quality will suffer by mixing of the old and new ink until the old ink is completely purged as taught by column 1, line 52 - column 2, line 10 of Childers et al. '044.

8. Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowger et al. US 5,788,388 in view of Childers et al. US 6,161,913 and Childers et al. EP 854 044.

Cowger et al. in view of Childers et al. '913 disclose the features of claim 14 common to claim 1 as cited in section 6 above.

Cowger et al. in view of Childers et al. '913 fails to disclose a control device that controls a charging of ink into said printhead in accordance with the data.

Childers et al. '044 teaches of a print cartridge with an integral memory which stores data regarding flushing operations when the ink cartridge is refilled with a new ink (column 2, lines 44-50).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the control device in the printing apparatus of Cowger et al.

in view of Childers et al. '913 to control flushing operations as taught by Childers et al. '044 in accordance with the data stored in memory.

The motivation for doing so would have been that when replacing old ink in an ink cartridge with new, different ink the print quality will suffer by mixing of the old and new ink until the old ink is completely purged as taught by column 1, line 52 - column 2, line 10 of Childers et al. '044.

Allowable Subject Matter

Claims 21-23 and 35 would be allowable if rewritten to overcome the claim objections and the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 27-32 would be allowable if rewritten or amended to overcome the objections of claim 27 set forth in this Office action.

Claims 33 and 34 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claims 36-40 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of the allowability of claims 21-23 and 33-35 is the inclusion therein, in combination as currently claimed, of the limitation of a control device which judges from the data stored in said memory device whether a next

reproduction of the ink cartridge is possible. This limitation is found in claims 21-23 and 33-35 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claims 27-32 is the inclusion therein, in combination as currently claimed, of the limitation of a control device which controls a reproduction processing apparatus in accordance with said data, and causes at least data, representing the number of reproductions and the time of reproduction, to be stored in said memory device after the reproducing operation is finished. This limitation is found in claims 27-32 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claims 36-40 is the inclusion therein, in combination as currently claimed, of the limitation of the steps of evaluating the ink cartridge data using the reproducing control device and determining whether regeneration of the ink cartridge is possible. This limitation is found in claims 36-40 and is neither disclosed nor taught by the prior art of record, alone or in combination.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Bullock et al. US 5,812,156 discloses memory devices on print cartridges which store a variety of data to determine the amount of ink supplied in an ink container (column 4 and 5).
- Murray et al. US 6,000,773 discloses a memory device on a print cartridge in which a user receives a warning after two refills of an ink cartridge that the cartridge needs to be serviced (column 12, lines 59-63) but fails to disclose reproduction processing apparatus responsive to ink cartridge memory data or a control device that judges whether a next reproduction is possible based on data stored in the memory device.
- Cook US 6,158,850 discloses a reproduction processing apparatus for a print cartridge which limits the number of secondary ink tanks used to refill the primary ink tank (column 3, lines 40-55) but fail to disclose a control device that judges whether a next reproduction is possible based on data stored in the memory device and only limits the number of refills by limiting the number of secondary ink tanks provided.
- Childers et al. US 6,170,937 and 6,227,638 both teach refurbishment of ink cartridges including memory devices but teach away from applicants invention by replacing or erasing the memory devices.
- Purcell et al. US 6,227,643 discloses combining external environmental data with data from a memory on a printer cartridge to optimize printer operations (see abstract).

In order to make the remaining claims allowable the examiner suggests incorporating the following limitation in independent claims 1, 3, 4, 5, 7, 8, 13 and 24:

A control device that determines from the data stored in said memory device whether or not a next reproduction of the ink cartridge is possible.

Response to Arguments

Applicant's arguments filed July 13, 2001 have been fully considered but they are only partially persuasive.

Applicant argues that

- a) Regarding independent claims 1 and 8, Childers et al. '913 fails to disclose data stored related to the environment of use of the ink cartridge.
- b) Regarding independent claims 3, 5 and 33, Cowger et al. '388 fails to disclose storing information related to maintenance processing required for a reproduction of the ink cartridge or related to a condition of exchange of a part of the ink cartridge.
- c) Regarding independent claim 4, Cowger et al. '388 fails to disclose storing data related to a condition of cleaning.
- d) Regarding independent claim 7, Cowger et al. '388 fails to disclose storing data related to the time of final ink depletion.
- e) Regarding independent claim 13, Cowger et al. '388 fails to disclose storing data related to minimum ink amount and residual ink amount.

f) Regarding independent claim 14, Cowger et al. '388 fails to disclose controlling a charging of the ink into the print head in accordance with data stored in the memory device.

g) Regarding independent claim 24, Emanuel '304 fails to disclose a cleaning device comparable to applicants.

h) Regarding independent claim 27, Cowger et al. '388 does not disclose a cartridge reproducing device.

The examiner disagrees and agrees with the above points as follows:

Regarding arguments a-e the examiner notes that storing data **related** to the environment of use, condition of cleaning, etc. is a very broad limitation and does not have the weight of storing data **indicative of or dependent upon** environment of use, condition of cleaning, etc. In standing with the traditional meaning of the term related (i.e. connected, associated with) the data stored in the devices of Cowger et al. '388 and Childers et al. '913 meets the limitations as currently claimed since

a) air accumulation is related to the environment of use (column 2, lines 51-60 of Childers et al. '913).

b) data regarding ink shelf life and freshness/expiration date (column 5, lines 22-33 of Cowger et al.) are inherently related to maintenance processing required for a reproduction of the ink cartridge or related to a condition of exchange of a part of the ink cartridge (i.e. if the ink has a low shelf life or if a freshness/expiration date is exceeded the ink cartridge or ink in the ink cartridge should be replaced.)

c) data regarding ink chemistry, ink drying time and amount of usage (column 5, lines 22-33 of Cowger et al.) are inherently related to how often the print head will be cleaned (i.e. a faster drying time will mean that the ink nozzles will get clogged more often and require a cleaning operation to be performed more often.)

d) data regarding the number of drop counts, ink volume and the duration in use (column 5, lines 22-33 of Cowger et al.) are inherently related to the time of final ink depletion (i.e. for more drops ejected, smaller ink volume and longer duration in use the time of final ink depletion will be closer.)

e) data regarding the number of drop counts, ink volume and the duration in use (column 5, lines 22-33 of Cowger et al.) are inherently related to minimum ink amount and residual ink amount (i.e. the amount of drops ejected, remaining ink volume and longer duration in use would be compared to a minimum ink amount and residual ink amount to determine if the ink cartridge should be replaced.)

Furthermore even if applicant were to amend the claims to include data indicative of as opposed to related to the environment of use, etc. this would not be non-obvious from what is known in the prior art since, as taught by Bullock et al. US 5,812,156 column 4, line 14 - column 5, line 16 among other references made of record in this action, it is well known to store any data useful in a printing process in memory and merely including an additional type of data to be stored without additionally claiming a device which employs this data would have been an obvious matter of design choice to a person of ordinary skill in the art at the time the invention was made.

The examiner agrees with applicant's sixth argument (f) and has changed the rejection accordingly.

The examiner agrees with applicant's seventh argument (g) and has changed the rejection accordingly.

The examiner agrees with applicant's eighth argument (h) and provides evidence that a cartridge reproducing device comparable to applicant's is known (US 6,158,850, column 3, lines 40-55) however the relevant claims are indicated as allowable for the reasons cited under Allowable Subject Matter.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet whose telephone number is (703) 305-3007. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow, Jr. Art Unit 2853, can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet 7/19/2001

Bm 7/19/2001

JB
John Barlow
Supervisory Patent Examiner
Technology Center 2800